

REMARKS

Claims 1-5, 7-15, 17-20, 25 and 26 are pending in the present application. By this Response, claims 1, 8, 11, 18, 25 and 26 are amended for proper claim structure. These amendments do not add any new matter and do not affect the scope of the claims. Reconsideration of the claims is respectfully requested.

I. 35 U.S.C. § 103, Alleged Obviousness, Claims 1-5, 7-15, 17-20, 25 and 26

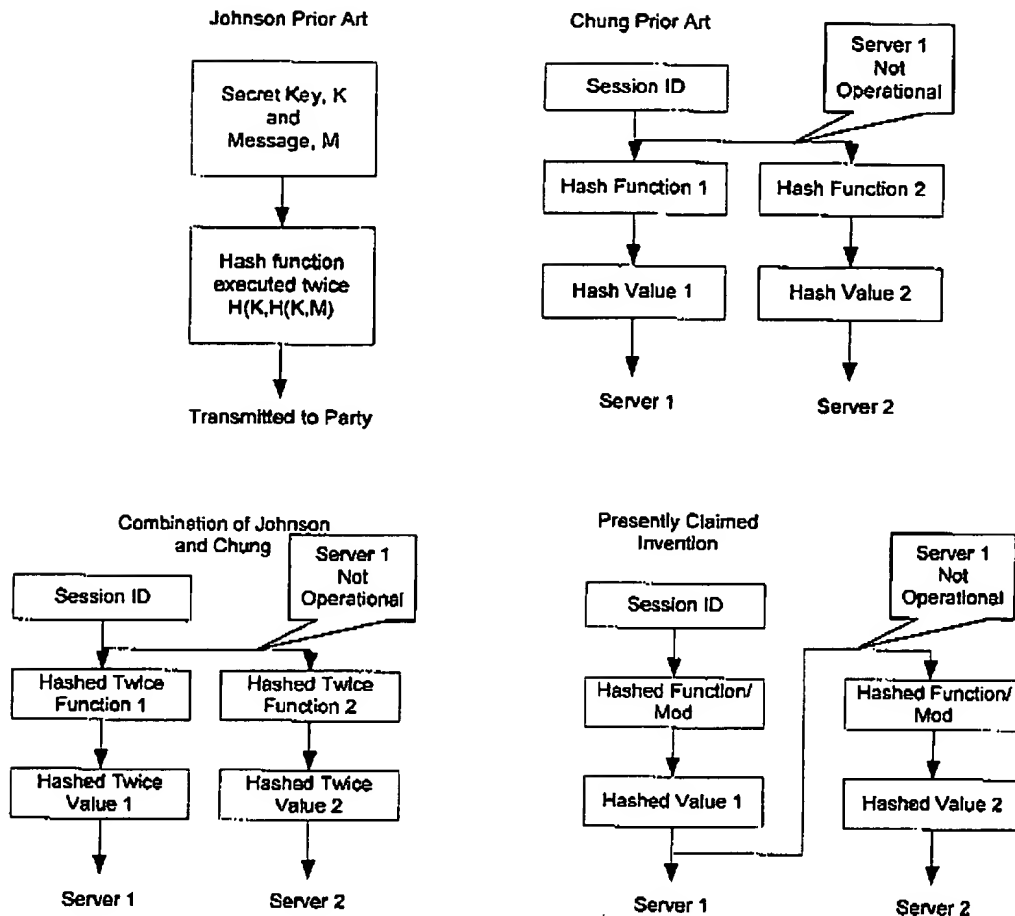
The Office Action rejects claims 1-5, 7-15, 17-20, 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Chung et al. (U.S. Patent No. 6,470,389) in view of Muller et al. (U.S. Patent No. 6,606,301) and in further view of Khuc et al. (U.S. Patent No. 6,470,008) and still in further view of Johnson et al. (U.S. Patent No. 6,591,250). Because this rejection is essentially the same as in the Previous Office Action, this rejection is respectfully traversed for the same reasons stated in the previous Response filed December 15, 2003, the remarks of which are hereby incorporated by reference. The following remarks are provided in rebuttal to the Examiner's statement in the present Final Office Action beginning on page 22, section 11.

In the December 15, 2003 Response, Applicants argued that Chung, Muller, Khuc or Johnson, taken alone or in combination, fairly teaches or suggests calculating a second value based on the first value in response to the first server being non-functional, as recited in independent claim 1, which is representative of the other rejected independent claims 11 and 25. In response, the Examiner on pages 22-23 of the Final Office Action states the following:

In response to argument A, the combination of Chung and Johnson would be obvious to a person of ordinary skill in the art at the time the invention was made. Chung, as a whole, discloses a method of routing requests through a dispatcher to various servers. Server side components in his system include a router, dispatcher and the various servers comprising a server farm [Chung – Figure 4]. Chung teaches that in the event that a server is non-functional, i.e. a server has failed, a second hash is calculated in order to route the request to a different server [Chung – Col. 7 lines 9-12]. As stated in the above rejection, upon which the Examiner draws the applicant's attention, Johnson teaches the deficiency

in the Chung reference that a second hash value is calculated from the first hash value [Johnson – Col. 13 lines 30-32]. While there can be various reasons why a server has failed, one all too common reason stems from an outside attack or virus that has occurred, which has left one or more servers non-functional. Therefore, Chung would see the need for added security on the server side components of his invention in order to prevent attacks from occurring. Johnson teaches that a second hash value is calculated from the first hash value in order to increase the security with which information is transmitted or stored. With this knowledge, Chung would see that by calculating a second hash on the already hashed value would provide further security in that the new server upon which being routed (a functional server) would be further disguised. This would provide added protection and prevent any other servers from being non-functional in the event of another staged attack. Therefore, the Examiner accordingly demurs to this assertion because the combination would be obvious to one of ordinary skill in the art for the reasons stated in the above office action.

Applicants respectfully disagrees that Chung and Johnson, taken alone or in combination, fairly teach or suggest calculating a second value based on the first value in response to the first server being non-functional. The Examiner's arguments rely on Johnson as teaching calculating a second value based on the first value. While the Johnson reference may teach performing a hash function twice, the hash function is not performed in response to the first server being non-functional. That is, the first hashed value of Johnson is immediately hashed again to create a twice-hashed value for the purpose of increasing security. The Examiner's arguments further rely on the combination of Chung and Johnson to teach calculating a second value based on the first value in response to the first server being non-functional. Thus, Applicants submit the following diagram to depict the differences of the prior art, the combination of the prior art, and the presently claimed invention.



Thus, the combination of the Johnson and Chung references only teach a process where, the session ID is hashed twice prior to sending the value to the server and if the server is non-functional, hashing another session ID twice prior to sending the values of the second server. The flowchart depicted above with regard to Chung is supported in the Chung reference at column 7, lines 9-12, which reads as follows:

If the hash value of a given client IP address maps to the failed server, the client IP address is rehashed to map to a non-failed server, and the connections of the remaining clients are not affected by the failure.

Additionally, the flowchart depicted above with regard to Johnson is supported in the Johnson reference at column 13, lines 15-32, which reads as follows:

Different MAC types may be used depending on the amount of security that is desired. The method may be employed as follows:

The two communicating parties already share a secret key K , a random value that may be, for example, 16 bytes.

The key is prepended to the message M to be sent, which is represented as K,M .

A hash function H is executed on the key and message data together $H(K,M)$ to produce a digest D .

The digest D is used as a MAC by appending it to the message and the result M,D is transmitted to the other party.

There are certain types of cryptographic attack that can theoretically compromise this type of authentication code, so an improved MAC may be used. For example, the following MAC construction that performs a hash function twice is more secure than a single hash function such as the function $H(K,H(K,M))$.

The flowchart depicted above with regard to the presently claimed invention is supported by the current specification at page 16, column 22-26, which reads as follows:

If the server is down in step 616, the process sets n equal to h (step 620) and returns to step 610 to recompute the hash function. The web server recomputes the hash function until a functional application server is selected.

Thus, the combination of Chung and Johnson would not result in the presently claimed invention. One of ordinary skill in the art, being presented only with Chung and Johnson, and without having prior knowledge of Applicants' claimed invention, would not have found it obvious to combine and modify Chung and Johnson to arrive at Applicants' claimed invention. To the contrary, even if one were somehow motivated to combine Chung and Johnson, and it were somehow possible to combine the two systems, the result would not be the invention recited in claim 1. The result would be a process the hashes a session ID twice to create a first value and in response to the server not being available would hash the same session ID twice using another function to create a second value.

Independent claims 8, 18 and 26, recite similar subject matter to that of independent claims 1, 11 and 25. That is, independent claims 8, 18 and 26, recite "performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional." Thus, independent claims 8, 18 and 26, distinguish over the combination of Chung, Johnson, Muller and Khuc for at least the reasons noted above with regard to independent claims 1, 11 and 25.

Additionally, the Examiner on page 24 of the Final Office Action states the following:

In response to argument B, while applicant argues that "the same hash function: is used to calculate the second value, nowhere does this statement appear in the claims. As is stated in claim 1, "a second hash value is calculated from the first value." Therefore, the applicant's argument with regard to "the same hash function" does not commensurate with the claim language.

Whether or not the same hash function is used to calculate the second hash value is irrelevant in view of the arguments above. That is, the combination of Chung and Johnson does not result in the presently claimed invention. The result of the combination of the Johnson and Chung references would be a process that hashes a session ID twice to create a first value and in response to the server not being available would hash the same session ID twice using another function to create a second value.

Furthermore, the Examiner on page 24 of the Final Office Action states the following:

In response to argument C, the combination of Chung and Muller would be obvious to a person of ordinary skill in the art at the time the invention was made. Chung, as a whole, discloses a method of routing requests through a dispatcher to various servers. In order to route the requests to the various servers with speed and efficiency, Chung hashes the IP address of the client and uses the hashed value to select a server. By hashing the value, a smaller, whole number is obtained which can quickly and efficiently be used to select a server and rout a request. Thus, Chung wishes to obtain speed and efficiency in routing, which he does obtain by using a hash function. Similarly, Muller discloses a modulus function to after he obtains a hash value to further obtain a smaller value with which to route requests to one of a number of processors, i.e. server. Muller uses the modulus function in order to obtain a smaller value which he further discloses for increased speed in routing to the various number of processors. Therefore, because both Chung and Muller are calculating values to route to different processors or server and because both are doing it to obtain speed and efficiency and to prevent "bottleneck" situations from developing, it would have been obvious to combine the two references. Chung would want to incorporate the modulus function in order to further gain speed and efficiency in addition to doing his hash function. Therefore, the Examiner accordingly demurs to this assertion because the combination would be obvious to one of ordinary skill in the art for the reasons stated in the above office action.

The Muller reference is used as a basis to reject claims 3, 4, 8-10, 13, 14, 18-20 and 26. Claims 8, 18 and 26 were addressed above in that the combination of Chung, Johnson, Muller and Khuc do not teach or suggest "performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional." Claims 3, 4, 9, 10, 13, 14, 19 and 20 are dependent on claims 1, 8, 11 and 18 and, thus, are distinguished over the combination of Chung, Johnson, Muller and Khuc for at least the reasons noted above with regard to claims 1, 8, 11 and 18. Moreover, Muller does not provide for the deficiencies of Chung, Johnson or Khuc and, thus, any alleged combination of Muller with Chung, Johnson and Khuc would not be sufficient to reject claims 1, 8, 11 and 18 or claims 3, 4, 9, 10, 13, 14, 19 and 20 by virtue of their dependency. That is, Muller does not teach calculating a second value based on the first value in response to the first server being non-functional, as recited in independent claims 1, 11 and 25 or performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional, as recited in independent claims 8, 18 and 26.

Still further, the Examiner on pages 24-25 of the Final Office Action states the following:

In response to argument D, the combination of Chung and Khuc would be obvious to a person of ordinary skill in the art at the time the invention was made. Chung, as a whole, discloses a method of routing requests through a dispatcher to various servers. In order to route the requests to the various servers with speed and efficiency, Chung hashes the IP address of the client and uses the hashed value to select a server. By hashing the value, a smaller, whole number is obtained which can quickly and efficiently be used to select a server and route a request. Thus, Chung wishes to obtain speed and efficiency in routing, which he does obtain by using a hash function. Khuc, as is well known in the art, teaches the use of a look-up table to quickly and efficiently route requests. Because this technique of using a routing look-up table was well known in the art and Chung wants to gain speed and efficiency for routing, something a look-up table provides, it would have been obvious to one of ordinary skill in the art for Chung to incorporate the look-up table teachings of Khuc. Therefore, the Examiner accordingly demurs to this assertion because the combination would be obvious to one of ordinary skill in the art for the reasons stated in the above office action.

The Khuc reference is used as a basis to reject claims 3, 4, 8-10, 13, 14, 18-20 and 26. Claims 8, 18 and 26 were addressed above in that the combination of Chung, Johnson, Muller and Khuc do not teach or suggest "performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional." As claims 3, 4, 9, 10, 13, 14, 19 and 20 are dependent on claims 1, 8, 11 and 18 and, thus, are distinguished over the combination of Chung, Johnson, Muller and Khuc for at least the reasons noted above with regard to claims 1, 8, 11 and 18. Moreover, Khuc does not provide for the deficiencies of Chung, Johnson or Muller and, thus, any alleged combination of Khuc with Chung, Johnson and Muller would not be sufficient to reject claims 1, 8, 11 and 18 or claims 3, 4, 9, 10, 13, 14, 19 and 20 by virtue of their dependency. That is, Khuc does not teach calculating a second value based on the first value in response to the first server being non-functional, as recited in independent claims 1, 11 and 25 or performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional, as recited in independent claims 8, 18 and 26.

In view of the above, Applicants respectfully submit that Chung, Johnson, Muller and Khuc, taken alone or in combination, fail to teach or suggest all of the features of claim 1, or the similar features found in independent claims 8, 11, 18, 25 and 26. At least by virtue of their dependency on claims 1, 8, 11 and 18, Chung, Johnson, Muller and Khuc, taken alone or in combination, fail to teach or suggest the features of dependent claims 2-5, 7, 9, 10, 12-15, 17, 19 and 20. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-5, 7-15, 17-20, 25 and 26 under 35 U.S.C. § 103(a).

II. Conclusion

It is respectfully urged that the subject application is patentable over the prior art of record and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

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